

Tech Outlook

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PROSYS



STORAGE POWER TO THE MAX

The Dell EMC PowerMax storage platform leverages the latest flash technologies and built-in intelligence to deliver maximum performance.

All-flash arrays have changed the game in terms of storage performance. NAND flash storage is orders of magnitude faster than legacy hard disk drives (HDD), making it possible to gain significant performance improvements by migrating to entry-level flash arrays.

For many organizations, however, this isn't enough. Early adopters of flash arrays are finding that older flash technologies are not keeping pace with today's performance and capacity demands. Organizations investing in Internet of Things (IoT) analytics and artificial intelligence (AI) are looking for enterprise-class storage technologies with the horsepower to enable these use cases.

"Taking full advantage of emerging technologies has become a compet-

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TECH OUTLOOK

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itive necessity in today's business environment," said Michael Renner, Partner Alliance Manager, ProSys. "Organizations cannot afford to be left behind so they're making strategic investments in state-of-the-art storage platforms that deliver higher levels of performance and automation. The latest solutions can support a wide range of data center workloads to help drive digital transformation and improve business outcomes."

Dell EMC is leading the charge with its new PowerMax storage solution. Built upon Non-Volatile Memory Express (NVMe) technology, PowerMax delivers up to 10 million IOPS and 50 percent better response times than previous-generation Dell EMC platforms.

"Dell EMC believes that PowerMax is the world's fastest storage array — two times faster than its nearest competitor," Renner said. "With PowerMax, organizations can take their storage to the next level, with industry-leading advancements built on a foundation of proven Dell EMC technology."

Maximum Performance

PowerMax is based on the legendary architecture and capabilities of VMAX, Dell EMC's flagship storage system. VMAX leverages advanced 3D NAND flash technology, multi-threading algorithms and a flash-optimized design to process up to 6.7 million IOPS with sub-millisecond latency. VMAX all-flash arrays deliver predictable performance and high availability, enabling organizations to consolidate transaction-intensive workloads and meet mission-critical application demands.

PowerMax takes that a step further with its end-to-end NVMe architecture. NVMe is a storage protocol and host controller interface that was designed to connect high-performance storage media via a PCI Express (PCIe) bus. Because NVMe lacks the overhead of legacy SATA and SCSI standards, it reduces latency and enables higher IOPS. In addition, NVMe can scale up to 1,000 shared storage devices and support thousands of parallel requests when extended over storage fabrics such as Fibre Channel and Ethernet.

"Older flash storage arrays were built using the same protocols as traditional disk drives, which employ various techniques to minimize disk reads and writes," said Renner. "NVMe was designed specifically for flash, eliminating the performance bottlenecks created by those legacy protocols."

In addition to NVMe-over-Fabrics, PowerMax supports high-speed, low-latency storage-class memory (SCM). SCM

delivers more than 10 times the performance of flash technology to support IoT analytics, AI, high-performance computing and in-memory databases.

"Flash storage is fast, but it's still much slower than DRAM," Renner said. "SCM is a storage/memory hybrid that is installed in memory slots on the motherboard. NAND flash is used for persistent storage while DRAM is used for cache, providing performance gains on both read and write operations."

Brains and Brawn

The PowerMax OS features a built-in machine learning engine, leveraging predictive analytics and pattern recognition to maximize performance with no management overhead. The solution currently analyzes 425 billion datasets in real time across Dell EMC's high-end all-flash installed base.

"Built-in machine learning not only makes autonomous storage a reality — it's the most cost-effective way to leverage SCM," Renner said. "Dell EMC is also the only company that can provide this level of storage software intelligence."

PowerMax also includes inline deduplication and enhanced compression, providing up to 5:1 data reduction while delivering industry-leading security, protection and resiliency. It achieves greater than "six 9s" availability to help ensure zero downtime of business-critical applications.

Because storage solutions are increasingly being consumed within converged infrastructure, Dell EMC now offers support for PowerMax in its VxBlock System 1000. With PowerMax, the VxBlock system breaks the physical boundaries of traditional converged infrastructure, providing enterprises with even greater simplicity and flexibility to help accelerate their digital transformation efforts.

While flash storage offers substantially greater performance than traditional HDDs, older flash storage systems based upon legacy storage protocols can create bottlenecks as workload demands increase. NVMe-over-Fabrics and SCM technologies can close flash performance gaps and provide greater scalability.

"Dell EMC engineered PowerMax with the latest storage innovations to handle the most demanding applications," said Renner. "Organizations looking to modernize their data centers to support digital transformation should be evaluating this fast, smart and efficient new solution."



News Briefs

New FCC Rules Expected to Boost 5G

The Federal Communications Commission (FCC) in March adopted new rules designed to streamline wireless infrastructure deployment. In particular, the rules address small cell deployments that are expected to be essential for next-generation 5G networks.

Small cells are essentially mini-cell towers that can be installed on light poles and other city infrastructure, allowing wireless operators to increase network density in preparation for 5G services. The new FCC ruling should encourage small cell deployments by exempting them from certain federal historic and environmental reviews.

Advances from 5G are expected to drive a host of connectivity benefits with wireless speeds up to 100 times faster than current 4G networks. A recent study by Accenture projects that the FCC reforms will save Americans \$1.56 billion over the next eight years, which in turn could create 17,000 jobs and result in over 55,000 new wireless deployments.

"Winning the global race to 5G and ensuring that more Americans get access to more broadband is a top priority," said FCC Commissioner Brendan Carr. "5G won't just mean faster broadband, it will support the next wave of American entrepreneurship and innovation — everything from smart cities to remote surgery to the Internet of Things. Whether you live in a big city or a rural town, broadband is key to economic opportunity and job creation."

Security Pros Suffering Burnout

Skills shortages, growing workloads and a lack of ongoing training is creating high levels of job fatigue and attrition among cybersecurity professionals, according to new research from ESG and the Information Systems Security Association (ISSA). As a result, 60 percent of the IT and cybersecurity professionals surveyed said they are not very satisfied with their current job.

Fifty-one percent reported that their organizations have a "problematic shortage" of cybersecurity skills. Additionally, 63 percent say the skills shortage has increased the workload on existing staff.

In addition to creating more work and more stress, 62 percent say the skills shortage is affecting their professional development. They say they don't have the time for ongoing cybersecurity training because they are too busy with day-to-day security tasks.

The high-stress environment can take a personal toll as well — 68 percent said a cybersecurity career can be taxing on the balance between one's personal and professional life, and 38 percent said the skills shortage is directly linked to high burnout rates and staff attrition.

To address these issues, ESG suggests that CISOs should conduct regular staff assessments, create work schedules to rotate personnel off the front lines, and provide support through stress relief programs, career counseling and professional development programs.

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Balancing Privacy and the Customer Experience

Customer identity and access management enables organizations to build rich customer profiles while respecting privacy and keeping data secure.

The Breach Level Index tracks statistics related to publicly disclosed security incidents. According to the latest data, more than 5 million data records are stolen each day, which equates to 59 records every second. The actual amount is undoubtedly much higher, given that many smaller breaches are not reported and the full impact of a breach is seldom known immediately.

The cost of these incidents is staggering. The 2017 Cost of Data Breach Report from the Ponemon Institute finds that the average organization spends \$141 per record to recover from a data breach. Direct costs include the hiring of legal counsel and forensic experts and offering victims credit monitoring services. Indirect costs include lost productivity and time spent investigating and responding to the incident, and loss of goodwill and customer churn.

Customer churn can be a significant expense. A recent Cisco report found that 22 percent of organizations suffering a data breach lost customers, with 40 percent of them losing more than one-fifth of their customer base.

Customer identity and access management (CIAM) can help organizations reduce these costs and mitigate the risk of a data breach. CIAM involves the capture and management of customer profile data for sales, marketing and product development purposes, as well as the implementation of security controls for protecting the privacy of that data. All of this is handled seamlessly to ensure a high-quality customer experience across multiple channels of engagement.

“Today's digital businesses need deep customer insights to successfully deliver new products and services that can increase customers' engagement and brand loyalty while maintaining their security and privacy,” wrote Forrester analyst Merrit Maxim in a recent report. “CIAM, if done well, can help business owners achieve this outcome.”

From IAM to CIAM

Most organizations have some form of identity and access management (IAM) to manage user credentials and control access to IT resources. However, IAM tools simply weren't designed to meet the needs and expectations of customers.

IAM tools operate within an organization to meet regulatory compliance requirements and enforce the organization's security policies. Identity data typically is controlled and managed by the HR and IT departments. CIAM solutions, in contrast, must scale to ensure the privacy of millions or even billions of customer accounts. Self-service tools are provided so customers can manage their own identities, with an emphasis on the customer experience.

Cumbersome registration and login processes can discourage customer engagement without measurably increasing security. CIAM solutions streamline registration and make it easy for customers to manage their preferences and consent to the use of their data.

Customer consent is more important than ever as the European Union (EU) General Data Protection Regulation (GDPR) goes into effect. The sweeping privacy regulation, which applies to any organization that maintains data on EU citizens, requires organizations to gain a data subject's consent by “statement or clear, affirmative action.”

However, CIAM isn't just about compliance. A recent survey conducted by Arlington Research found widespread concern about data privacy. More than two-thirds (68 percent) of survey respondents said they are

worried about how organizations use their personal data. This worry increases across generations, with 60 percent of 18- to 24-year-olds registering concern, versus 73 percent of those aged 65 and older.

Some 63 percent of consumers said they are ready and willing to take responsibility for their personal data — if given the chance to do so. CIAM tools provide them with greater control over the privacy of their information.

Keep It Personal

In addition to registration and self-service account management, CIAM tools facilitate the use of multi-factor authentication (MFA). MFA boosts security by requiring more than a simple username and password combination for account authentication. Consumers are increasingly amenable to adopting MFA if it is easy to use.

Many CIAM tools also provide single sign-on (SSO) capabilities, which have become increasingly important given the plethora of web, mobile, partner and Internet of Things (IoT) applications associated with a brand. SSO allows customers to log in once to access these accounts and even use their social media credentials for authentication.

Enterprise-class CIAM solutions can help organizations integrate consumer identity data across multiple applications and communication channels, creating a 360-degree view of the customer. This makes it easier to track all interactions and analyze customer behavior. Organizations can provide more meaningful and relevant messaging based upon customer actions, regardless of channel or device. Creating a personalized experience, while enabling consumers to easily control their own data and privacy, builds customer trust.

Organizations face a delicate balancing act. Customers will not put up with complex registration processes, multiple logins across services and devices, and inconsistent mobile and desktop experiences. At the same time, they expect organizations to maintain the security and privacy of their data, and present them with messaging and options that are meaningful and relevant. If an organization suffers a data breach, many customers will simply take their business elsewhere.

CIAM solutions help organizations strike the right balance between privacy and the customer experience. CIAM makes it easy for customers to interact with a brand and manage their privacy preferences, and provides powerful tools for protecting customer information to reduce the risk of a costly data breach.

A New Way to WAN



Software-defined WAN solutions help to reduce costs and streamline operations through flexibility, consolidation and centralized management.

The wide-area network (WAN) has become one of the most critical components of the IT infrastructure, enabling organizations to gain access to cloud resources and connect remote locations and workers to headquarters. Most network administrators would agree that legacy WAN architectures are ill-equipped to meet today's requirements.

Traditionally, organizations provisioned dedicated circuits or multiprotocol label switching (MPLS) links to interconnect locations, backhauling web traffic to headquarters due to the inherent unreliability of Internet connections. That worked well enough when Internet traffic primarily consisted of web browsing and email. As organizations continue to adopt Third Platform technologies — cloud, big data and analytics, mobility, and social applications — they are finding that the cost and complexity of traditional WAN models are unsustainable.

Software-defined WAN (SD-WAN) solutions are ideally suited to address these new demands. SD-WAN draws upon software-defined networking (SDN) principles to improve the manageability and reliability of the WAN. With SD-WAN, organizations can dynamically mix and match connectivity options to cut costs, enhance security and improve application performance. SD-WAN also makes it possible to consolidate network devices in branch locations, streamlining branch deployment and simplifying support.

Although SD-WAN solutions have only been commercially available for a few years, the technology's compelling value proposition has led to remarkable market growth. In a recent forecast, research firm IDC estimated that worldwide revenues for SD-WAN infrastructure and services will

exceed \$8 billion in 2021 — a compound annual growth rate of nearly 70 percent.

Choosing the Right Path

A key feature of SD-WAN is its ability to blend multiple transport types, such as MPLS, broadband Internet, cellular and satellite, in an active-active configuration. Software-based intelligence provides automated, policy-driven routing of traffic over the optimal connection. This enables organizations to leverage cost-efficient broadband Internet links and reduce their reliance on expensive MPLS.

That simply would not be possible in a traditional WAN environment. The configurations required to differentiate and segment traffic in the hybrid WAN would have to be applied manually to devices at each location and updated regularly as application profiles and business needs changed.

SD-WAN automates all of that with a centralized, application-based policy controller and a secure software overlay that abstracts the underlying networks, with analytics for application and network visibility. These technologies provide intelligent path selection across WAN links, based on the application policies defined on the controller and the current state of the network. Administrators simply define and prioritize various types of traffic, and the WAN adapts to changing network conditions.

“Traditional WANs were not architected for the cloud and are also poorly suited to the security requirements associated with distributed and cloud-based applications,” said Rohit Mehra, vice president, Network Infrastructure at IDC. “And while hybrid WAN emerged to meet some of these next-generation connectivity challenges, SD-WAN builds on hybrid WAN to offer a more complete solution.”

Some IT industry pundits speculated that SD-WAN would spell the ultimate demise of MPLS. Organizations

could implement multiple broadband links for greater resilience instead of backhauling WAN traffic to headquarters. However, most organizations have deployed broadband alongside MPLS. Dedicated connections can be reserved for latency-sensitive applications and sensitive data, and broadband used for cloud-based applications.

Simplicity and Security

Many SD-WAN solutions also virtualize a number of network functions, including WAN optimization and firewall capabilities. All of this functionality is combined in one device that can be centrally managed and deployed on demand.

This ability to reduce WAN complexity is a primary driver of SD-WAN adoption, according to a global study conducted by Dimensional Research. Growing numbers of network devices have increased the time to provision branch locations, with 32 percent of organizations surveyed saying it took longer than a month. More than 85 percent of organizations are considering SD-WAN specifically to reduce network appliance sprawl and increase security.

Fifty-seven percent of organizations said their primary motivation for SD-WAN adoption was increased risk that comes with direct Internet connection at the branch. Seventy-four percent said they utilize a direct Internet connection and must deploy more devices to combat threats. Sixty-eight percent said that deploying and managing network security devices at branch locations was the most challenging aspect of WAN management.

In addition to consolidating WAN devices in branch locations, SD-WAN can improve security by simplifying site-to-site VPN connections. SD-WAN also enables WAN segmentation — a complex proposition with traditional architectures.

The benefits of SD-WAN include cost-effective delivery of business applications, optimization of cloud-based services, improved branch-IT efficiency and enhanced security. These benefits have resonated across a broad spectrum of organizations, ensuring continued rapid uptake for this new way to WAN.

DELL EMC



LET THE TRANSFORMATION BEGIN

Dell EMC's Virtual Edge Platform (VEP) is a first-to-market software-defined wide area network solution (SD-WAN)

designed to help speed digital transformation by connecting the enterprise edge to the cloud. Built with



advanced intelligence for network virtualization and software-defined architecture, the Dell EMC VEP4600 provides an open Intel® architecture-based platform to support multiple simultaneous virtual network functions (VNF) such as routing, firewalling and deep-packet inspection, which means you can consolidate numerous proprietary physical devices into a single appliance. **Contact ProSys to learn more about using VEP to accelerate your digital transformation goals.**

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Introducing the World's Fastest Data Storage Array¹

Businesses are in the midst of an IT transformation. Every second saved means spending more time running the business and less time managing data. Flash changed the storage game with sub-millisecond latency, but next-generation applications continue to push the performance boundaries that these all-flash arrays can provide. To address the needs of these applications, organizations need a new generation of storage that provides unparalleled performance without compromising security, protection, scalability, availability, or efficiency.

Dell EMC PowerMax is the world's fastest storage array. It delivers new levels of performance and efficiency with a future-proof architecture that features end-to-end non-volatile memory express (NVMe) and a built-in machine learning engine. PowerMax is built on the comprehensive functionality and proven resiliency of Dell EMC's flagship storage platform. It provides six-nines of availability, data-at-rest encryption, massive scalability, and best-in-class data protection.

Contact your ProSys representative to learn more about future-proofing your storage environment with PowerMax.

